

NEW MILLENNIUM PROGRAM

Status Report

to

Working Group on Space-Based Lidar Winds

Carol Raymond, JPL

June 21, 2000



NMP Status



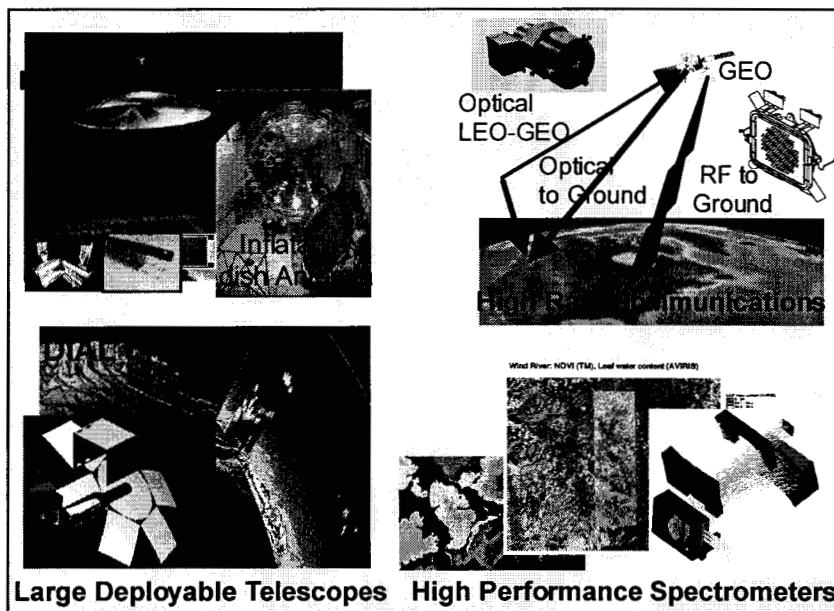
- Program exploring an alternate method of validating breakthrough high-payoff technologies:
 - Augment program to include subsystem validations in addition to integrated measurement systems
 - Utilize flights of opportunity to increase flight rate
 - Team with partners to share costs of access to space, validation platform (bus) and potentially technologies
 - Planned flight rate of ~1 mission per year in both Earth Observing and Space Technology series
 - Workshops were held to explore subsystem validation needs for the Earth Science Enterprise and perform preliminary assessment of value of validations
- Mission Update
 - EO1 launch scheduled in October 2000
 - EO3 Confirmation Review scheduled for March 2001
 - ST5 (Nanosat Trailblazer) scheduled for 2003 launch



Augment NMP Program with Enabling Breakthrough Subsystems



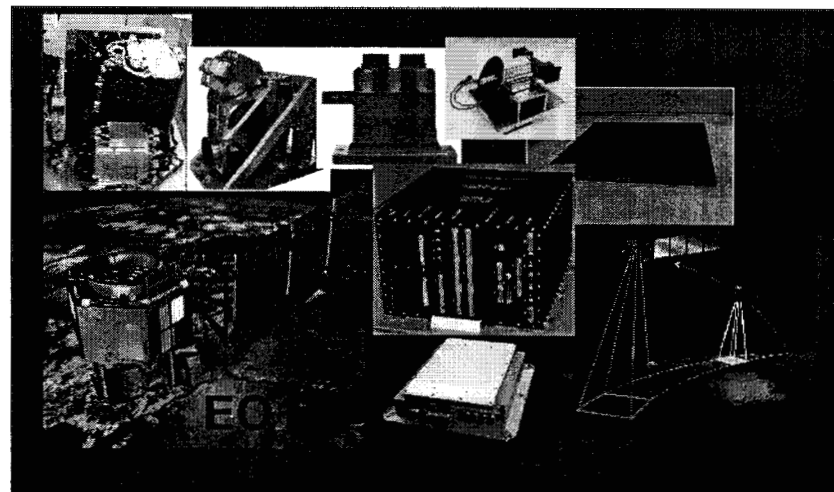
Breakthrough Subsystems



- Breakthrough subsystems that
 - Require flight validation (environment, major implementation shift)
 - Enable critical functions for key/enhanced measurements
 - Yield broad benefits to multiple missions
- Breakthrough subsystems can be tested as stand-alone items without full instruments
 - More cost effective
 - Focus on validating technologies where needed

Augmentation to include validation of breakthrough subsystems

Integrated Measurement System



- Paradigm shift in measurement approach
 - Validation to ensure critical measurement continuity
- Risk mitigation required for transition to operational missions

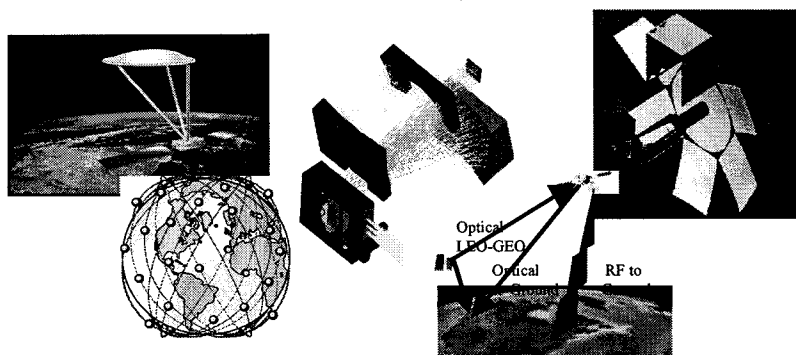
Sharpen Current NMP Criteria



Technology Validation Needs to Support Earth Science Missions



- Several technology subsystem “themes” identified that can bring broad benefit to Earth science measurements

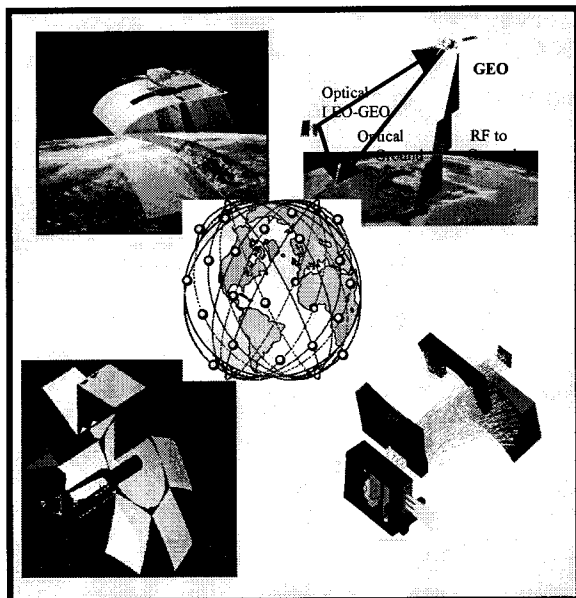


- “First cut” of technology subsystem “themes” from science implementation plan
 - Subsystems enabling multiple measurement concepts/missions
-
- Technology subsystems can be validated with more cost-effective approaches
 - Validation experiments focused on high risk, high pay-off subsystems
 - Potential piggyback/shared launch arrangements to maximize technology investments



Workshops to Examine Subsystem Technology Validation Needs Supporting Innovative Earth Science Measurements

NMP



- Large Aperture Lightweight Inflatable/Deployable/Optics/ Antennas
 - Radiometers
 - Lidars
 - Radars
 - Imagers
- Ultra-High Rate Communications/Onboard Processing
 - High spatial/spectral resolution imaging
- Distributed Spacecraft Infrastructure
 - Integrated network observatory
 - Coordinated observations at multiple location/ vantage points.

Workshops to define roadmaps for technology validation needs

- Ultra-High Rate Communications 04/06
- Large Deployable Antennas 04/13
- Deployable Telescopes 04/18
- Distributed Spacecraft Infrastructure 05/01
- High Performance Spectrometry 05/12

- Science/technology participants in workshops to identify/define strawman validation experiments
 - co-chaired by scientists/technologists
 - addressed future science needs
 - produced technology roadmaps for flight validation in '04/'05
 - attempt to converge on the “right” experiments from science/technology validation perspective
- Initial workshops more heavily attended by NASA participants
 - intend to hold follow-on workshops with broader community participation